CLAIM(S):

1. A method of controlling a material removal process used to finish a magnetoresistive element on a slider to a desired height, the method comprising:

applying a magnetic field to the slider;

sensing an electrical response of the magnetoresistive element to the magnetic field;

controlling the material removal process based on the electrical response of the magnetoresistive element.

2. The method of claim 1 wherein sensing the electrical response of the magnetoresistive element comprises applying a bias current to a reader element and sensing a change in resistance of the magnetoresistive element.

3. The method of claim 1 wherein sensing the electrical response of the magnetoresistive element comprises applying a bias current to a reader element and sensing an amplitude of the current.

4. The method of claim 1 wherein the magnetoresistive element comprises a cloned dummy element which is located in close proximity to an operational magnetoresistive element and which protects the operational magnetoresistive element from electro-static discharge.

5. The method of claim 1 and further comprising using an electric lapping guide to coarsely control an early stage of material removal before using a direct electrical response of the magnetoresistive element to control a final stage of material removal.

6. The method of claim 1 wherein several sliders are provided on a bar and material removal is controlled on an individual slider basis across the bar.

7. A method of machining a bar of sliders to achieve a desired height of a magnetoresistive element located on each of the sliders, the method comprising:

applying a magnetic field to the lapping surface and applying a bias current to the magnetoresistive elements;

sensing an electronic parameter related to a height of the magnetoresistive element on each slider;

creating a magnetoresistive element height profile of the bar based on the sensed electronic parameters; and

controlling the machining of the bar based on the height profile to achieve a target magnetoresistive element height on each slider, wherein controlling the machining comprises individually controlling each slider on the bar.

8. The method of claim 7 and further comprising providing a means for protecting the magnetoresistive elements from electro-static discharge during manufacturing.

9. The method of claim 8 wherein protecting the magnetoresistive elements from electrostatic discharge comprises providing a dummy magnetoresistive element, sensing a height of the dummy element, and lapping the slider based on the sensed dummy element height to achieve a target stripe height.

10. The method of claim 7 wherein sensing an electronic parameter related to a height of the magnetoresistive element on each slider comprises applying a bias current to the magnetoresistive element and sensing an amplitude.

11. The method of claim 7 wherein sensing an electronic parameter related to a height of the magnetoresistive element on each slider comprises applying a bias current to the magnetoresistive element and sensing a change in resistance of the magnetoresistive element.

12. The method of claim 7 and further comprising using an electrical lapping guide for machining control before using the electrical response sensed in the magnetoresistive element for machining control.

13. A material removal device for lapping a bar comprising a plurality of sliders, the material removal device comprising:

means for sensing a height of each magnetoresistive element on each slider on the bar;

means for controlling the material removal device based on the sensed magnetoresistive element height of each slider to achieve a target height for each magnetoresistive element on each slider on the bar.

14. The material removal device of claim 13 wherein the means for controlling the material removal device comprises a control system for collecting data corresponding to the sensed magnetoresistive element height and comparing the data to a target height.

15. The lapping device of claim 14 wherein the means for controlling the lapping device further comprises individual slider based control drivers for individually adjusting each slider relative to the lapping device.

16. The lapping device of claim 13 wherein the means for sensing the height of the magnetoresistive element comprises:

applying a magnetic field to the bar;

applying a bias current to each magnetoresistive element on each slider on the bar; and

sensing an electrical response of each of the magnetoresistive elements to the magnetic field.

17. The lapping device of claim 16 wherein sensing an electrical response of the magnetoresistive element comprises sensing a change in resistance.

18. The lapping device of claim 16 wherein sensing an electrical response of the magnetoresistive element comprises sensing an amplitude.

19. The lapping device of claim 14 wherein the means for sensing the height of the magnetoresistive element comprises:

providing a dummy magnetoresistive element on each slider to protect the working magnetoresistive element on each slider from electro-static discharge; and

sensing an electrical response of the dummy reader.